

U.S. Department of Labor Program Highlights



Fact Sheet No OSHA 95-24

SAFETY WITH VIDEO DISPLAY TERMINALS

The Occupational Safety and Health Administration (OSHA) is often asked about possible safety and health problems associated with video display terminals (VDTs). Some concerns include high voltage electricity, ergonomics, and noise. But the greatest interest is in whether extreme low frequency fields or higher frequency radiation fields emitted by VDTs pose any problem, particularly for pregnant women.

OSHA has no standards that apply specifically to video display terminals or to extreme low frequency electric and magnetic field exposure. However, OSHA does have standards to protect employees against overexposures to radiation, noise, and electrical hazards.

RADIATION: The National Institute for Occupational Safety and Health (NIOSH), the U.S. Army Environmental Hygiene Agency, and others have measured radiation emitted by VDTs. The tests show that levels for all types of radiation are below those allowed in current standards. In fact, some measurements show radiation levels so low that they cannot be distinguished from general environmental radiation (background radiation).

Currently, OSHA has no reliable information that birth defects have ever resulted from a pregnant woman working at a video display terminal. However, the possible effects of radiation or extreme low frequency fields from VDTs on pregnancies continue to concern employees. Therefore, NIOSH and others are currently conducting major studies to thoroughly investigate any potential problems.

NOISE AND ELECTRICAL HAZARDS: It is unlikely that noise exposures in a typical office setting, even in an office with a pool of VDTs, would exceed OSHA standards. However, a cluster of high-speed printers without sound screens could produce some potentially hazardous noise levels.

Noise levels should be kept within comfortable limits. Sound sources that are unacceptably noisy should be shielded by sound absorbent screens or hoods or placed in a separate room. Absorbent materials such as acoustical ceiling tile, carpets, curtains, and upholstery also can cut noise.

OSHA has a number of electrical requirements applicable to VDTs. The equipment must be properly installed, used, and grounded to ensure employee safety.

PHYSICAL DISCOMFORTS: Video display operators sometimes report eye fatigue and irritation, blurred vision, headaches, dizziness. Others experience pain or stiffness in the neck, shoulders and back. These problems usually can be corrected by adjusting the physical and environmental seeing where the VDT users work. The relation of the operator to the keyboard and the screen, the operator's posture, the lighting, and the background noise should be carefully examined to prevent discomfort.

More serious are repetitive motion hand and wrist injuries. Risk of these injuries can be minimized with frequent rest breaks and appropriately designed keyboards.

LIGHTING: Work stations and lighting should be arranged to avoid reflections from the screen or surrounding surfaces. Light should be directed so that it does not shine into the operator's eyes when the operator is looking at the screen.

Normal office lighting can be supplemented by individual task lighting at a work station if necessary. Task lighting enables operators to adjust lighting to their individual preferences.

GLARE: Glare can result from light impairing on oval reflecting from a VDT screen or shiny keyboard. Anti-reflective screen treatment can be added to a VDT

screen, and later model keyboards usually have an anti-glare matte finish. To avoid glare, display screens may be placed near a window so the line of sight between eye and screen is parallel to the window surface or the windows can be shielded to reduce excessive sunlight. Walls painted with a nonreflective medium-to-dark paint can minimize glare.

WORK STATION DESIGN: An individual work station should provide the operator with maximum flexibility to adjust sitting position, arm and shoulder position and height of work surfaces. The work station should give the operator flexibility to reach, use and observe the screen, keyboard and the document. It's important for employees to receive guidance on making good adjustments to ensure a proper match of the employee, the equipment and work methods.

In addition to overall adjustability of equipment to individual needs, some general guidelines to minimize fatigue include:

Posture support: The seat and backrest of the chair should support a comfortable posture permitting occasional variations in the sitting position. Chair height and backrest angle should be easily adjustable. A foot rest may be necessary for short individuals.

Arms: When the operator's hands are resting on the keyboard, the upper arm and forearm should form a right angle. The hands should be in a reasonably straight line with the forearm. Long or unusually high reaches should be avoided. Armrests should permit periodic support as needed.

Legs and feet: The chair height is correct when the entire sole of the foot can rest on the floor or footrest and the back of the knee is slightly higher than the seat of the chair. This allows the blood to circulate freely in the legs and feet.

Adjustment of screen position: Screens which swivel horizontally and tilt or elevate vertically enable the operator to select the optimum viewing angle.

Work station surface: The table or work station should suit the kind of task to be done. It should be large enough for any reference books, files, telephone, or text and also permit different positions of the screen and keyboard. Adjustable surface height is an advantage.

Eye and screen: The topmost line of the display should not be higher than the user's eyes. The

screen and document holder should be the same distance from the eye (to avoid constant changes of focus) and close together so the operator can look from one to the other without excessive movement of the neck or back. The incline of the document holder should be adjustable. Legibility is a prime consideration in selecting a display screen. This also applies to document selection. Legibility factors to be considered include: symbol size and design, contrast and sharpness.

Adjustment of the keyboard: A movable keyboard is a plus--provided it doesn't end up in an employee's lap! It can be arranged to suit the type of work and the need to consult documents or notes.

TASK CONSIDERATIONS: The type of task performed on a VDT influences the development of fatigue. Therefore, in designing a work station, the type of tasks a worker does should be considered when placing the screen and keyboard. Whatever the task, it is desirable for the operator to have some control—the opportunity to pace the work, a breaks, or change positions.

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